PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Environmental & Water Resources

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DATABASE AND ANALYTICAL TOOLS FOR AIR QUALITY DATA OBTAINED IN THE UPPER OHIO RIVER VALLEY

Web-based System Provides Detailed Air Quality Information to Researchers and Policy-makers

PRIMARY PROJECT PARTNER

Advanced Technology Systems, Inc.
Pittsburgh, PA

PROJECT PARTNERS

Ohio University
Athens, OH

Texas A&M University–Kingsville
Kingsville, TX

WEBSITES

http://www.netl.doe.gov

http://www.pmdata.org/

Background

From 1999 through 2002, DOE-NETL and its contractors collected large amounts of ambient air quality data at monitoring sites in the upper Ohio River Valley region, including extensive monitoring sites in Pittsburgh, PA (two urban sites), Holbrook, PA (rural site), South Park, PA (suburban site), and Steubenville, OH. Less-extensive monitoring sites were operated in six other locations in PA, OH and WV. However, because each project had a slightly different technical emphasis and was conducted by a different set of investigators, the ambient air quality data for each project were maintained in separate databases. Consequently, DOE-NETL initiated an effort in August 2002 to develop a central air quality database and sophisticated web-based analytical tools that allow users to process and graph the data on-line.

Description

The data management system includes a web-based user interface that will allow easy access to the data by the scientific community, regulatory personnel, and other interested stakeholders, while providing detailed information on sampling, analytical and quality control parameters. In addition, the system provides graphical analytical tools for displaying, analyzing and interpreting the air quality data. The system will also provide multiple report generation capabilities and easy-to-understand visualization formats that can be utilized by the media and public outreach/educational institutions. The analytical tools are also being configured to operate on the much larger ambient air quality datasets that are routinely collected by U.S. EPA and other Federal and State agencies.

TECHNICAL CONTACTS

William W. Aljoe
U.S. Department of Energy
National Energy Technology Laboratory
412-386-6569
aljoe@netl.doe.gov

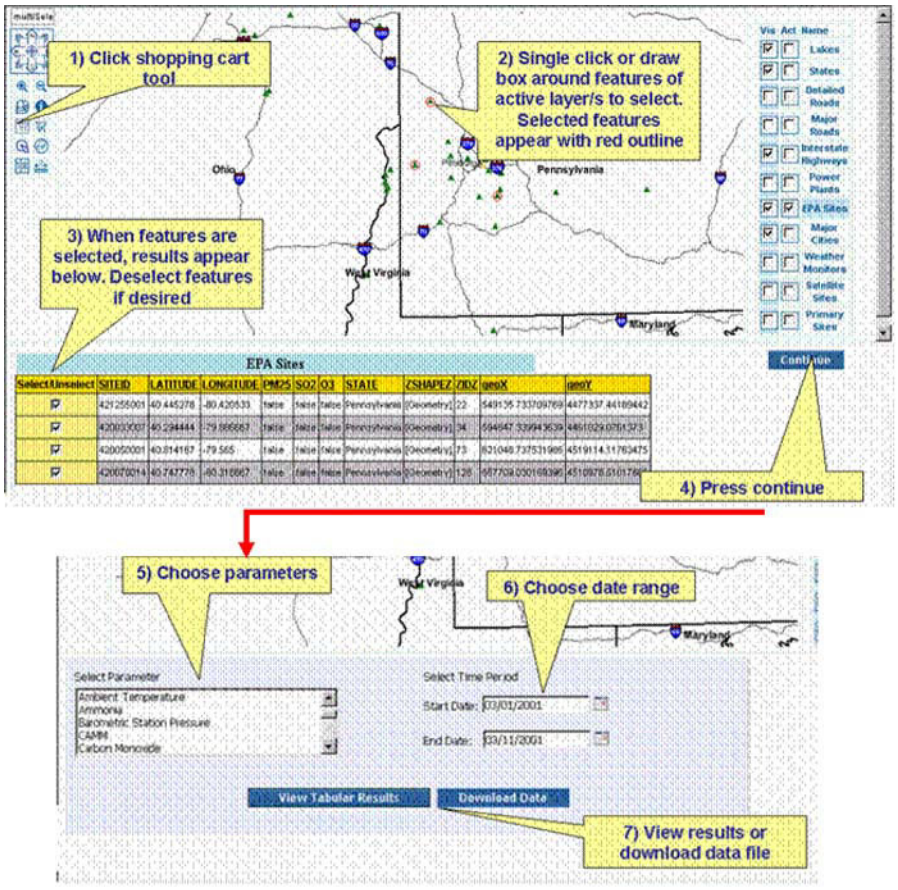
Robinson P. Khosah
Advanced Technology Systems, Inc.
412-967-1900
rkhosah@atschester.com

Project Objectives

- Integrate air quality data from multiple DOE-sponsored monitoring programs in the Upper Ohio River Valley region
- Create large, flexible database structure that is capable of incorporating non-DOE data sets
- Create user-friendly tools for simultaneously accessing, displaying, analyzing and interpreting air quality data from multiple public databases

Preliminary Results and Status

An important component of the project has been the development of a stakeholders group consisting of technical representatives from various local, State and Federal agencies who are most likely to be users of the database and analytical tools. Other major accomplishments included the development of the web-based data retrieval system, serial and graphical (GIS) procedures for querying the database, and data input and output protocols. Over the next year, the project team will work closely with stakeholders to develop a web site where the sophisticated graphing and analytical tools used most often by air quality scientists are readily available. A public website will also be developed to provide clear and concise data summaries from the monitoring programs, including easy-to-understand graphical and mapping tools. An interactive help and instruction system will assist the user at any level of scientific background (novice to professional) in the interpretation of the data.



GIS Query Procedure